

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-3 and 5-19 are pending in the present application. Claims 4 and 20-22 have been canceled and Claims 1 and 8 have been amended by the present amendment.

In the outstanding Office Action, the drawings were objected to; Claims 1-7 and 10 were rejected under 35 U.S.C. § 102(b) as anticipated by Fujimoto; Claim 8 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Yoshida et al; Claim 9 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Yoshida et al and Reese et al; Claims 11-14 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Taniyama et al; Claim 15 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Taniyama et al and Kurotaka et al; Claims 17 and 18 were rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Isobe et al; and Claim 19 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Isobe et al and Matsuo et al.

Regarding the objection to the drawings, Figure 1 has been amended to include an arrow A indicating that the image forming section 3 including the image forming units and the transfer belt device 20 is detachably attached to the main body of the color printer 1 independently of the toner container vessel 100. The specification has also been appropriately amended. These features are recited in original Claim 19, and thus it is believed that no new matter has been added. A separate letter requesting approval of this drawing change is being submitted to the draftsman. Accordingly, it is respectfully requested this objection be withdrawn.

Claims 1-7 and 10 stand rejected under 35 U.S.C. § 102(b) as anticipated by Fujimoto. This rejection is respectfully traversed.

Claim 1 has been amended to include the subject matter recited in Claim 4. In more detail, amended Claim 1 is directed to a color image forming apparatus including a transfer belt device which feeds a transfer member, and a plurality of image forming units, which are disposed facing towards the transfer belt device. Further, each of the image forming units forms a desired image and sequentially transfers the form image on the transfer member fed by the transfer belt device. In addition, the transfer belt device, at least in a portion in which the image forming units have been disposed, is arranged such that it is inclined with respect to the ground. Further, the angle of inclination of the transfer belt device with respect to the ground is between 35° and 55°.

In a non-limiting example, as shown in Fig. 3, assume that the inclination angle of the transfer belt 20 is designated by θ . If the angle θ is small, the developing device 10 and the cleaning device 9 in the adjacent image forming units cannot be disposed in such a manner as to overlap with each other, unlike the above description. In contrast, if the angle θ is about 90°, the lateral length can be remarkably shortened while a vertical height to some extent is needed, thereby making the position of the sheet discharging tray too high. Therefore, it is preferable that the inclination angle θ of the transfer belt 20 should range from 35° to 55°. As shown in Fig. 3, if the inclination angle θ is set between 35° and 55°, a developing position of the developing device 10, i.e., a position at which a magnetic brush formed in a developing roller 11 is brought into contact with the photosensitive drum 5, can be located in a lower right quadrant when the transfer belt 20 is brought into contact with the photosensitive drum 5 in a lower left quadrant, the center O of rotation of the photosensitive drum 5 being regarded as an origin (see page 11, line 16 to page 12, line 11).

In this manner, the developing device 10, which is disposed in such a manner as to develop in the lower right quadrant of the photosensitive drum 5, has the advantage of alleviation of coming-off of the toner in comparison with a developing device which is

disposed at the same height level as or above the center of rotation of the photosensitive drum 5. Furthermore, when the inclination angle θ of the transfer belt 20 is set between 35° and 55° and the transfer belt 20 is brought into contact with the photosensitive drum 5 in the lower left quadrant, the center O of rotation being regarded as the origin, a cleaning blade 90 and a fur brush 91 of the cleaning device 9 can be brought into contact with the photosensitive drum 5 in an upper left quadrant of the photosensitive drum 5 (see page 12, lines 11-24).

Regarding the subject matter recited in Claim 4, the outstanding Office Action indicates Fujimoto teaches a transfer belt device which is inclined at an angle of inclination with respect to the ground that is within the claimed range and cites Figure 1. However, upon measuring with a protractor the angle of the ground with respect to the transfer belt device in Figure 1 of Fujimoto, it is noted the angle is approximately 25° or less. This differs from the claimed invention which recites that the angle of inclination of the transfer belt device with respect to the ground is between 35° and 55° . Further, as noted above, the claimed range produces particular advantages. Thus, because Fujimoto does not teach the claimed range, Fujimoto can also not achieve the particular advantages of the present invention.

Accordingly, it is respectfully submitted independent Claim 1 and each of the claims depending therefrom are allowable.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Fujimoto in view of Yoshida et al. This rejection is respectfully traversed.

Claim 8 has been rewritten in independent form, and recites that the cleaning unit of a lower one of the image forming units adjacent to each other and the developing unit of an upper one of the adjacent forming units adjacent to each other are arranged at positions partly overlapping with each other in a vertical direction. The outstanding Office Action states the

combination of Fujimoto and Yoshida et al teach the claimed invention. However, Applicants note none of these references teach or suggest the claimed overlapping feature.

According, it is respectfully requested this rejection also be withdrawn.

Further, regarding the additional rejections of the dependent claims, it is respectfully submitted the additional publications also do not teach or suggest the claimed invention.

Accordingly, it is respectfully requested these rejections also be withdrawn.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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IN THE SPECIFICATION

In the meantime, a setting section in the image forming apparatus body, in which the toner containing vessel [1] 100 is set, is configured as a unit independent of the developing device 10. Further, the image forming section 3 including the image forming units and the transfer belt device 20 is detachably attached to the main body of the color printer 1 independently of the toner containing vessel 100 as shown by the arrow A in Fig. 1. In the setting section is erected the nozzle 160 which has a circular shape in cross section and is inserted into a toner bag 102. The toner containing vessel 100 is installed from above in the setting section in the image forming apparatus body. A projecting member 161 formed into a drill-like shape in cross section is molded integrally with or fixed to the upper portion of the nozzle 160 disposed in the setting section. An air supplying path 162 and a toner supplying path 163 are provided continuously from the projecting member 161. The inside of the nozzle 160 is formed into a double-pipe structure. The toner supplying path 163 is bent leftward in Fig. 4 at the lower end of the nozzle 160, and further, the toner connecting port 65 connected to the toner conveying tube 149 is disposed at the tip of the toner supplying path 163. Moreover, the air supplying path 162 is bent rightward in Fig. 4 above the toner supplying path 163, and reaches an air connecting port 164.

IN THE CLAIMS

--1. (Amended) A color image forming apparatus comprising:
a transfer belt device which feeds a transfer member; and
a plurality of image forming units, which are disposed facing towards the transfer belt
device,

wherein each of the image forming unit forms a desired image and sequentially
transfers the formed image on the transfer member fed by the transfer belt device[; and],

wherein the transfer belt device at least in a portion in which the image forming units
have been disposed is arranged such that it is inclined with respect to the ground,and
wherein an angle of inclination of the transfer belt device with respect to the ground is
between 35° and 55°.

4. (Canceled).

8. (Amended) [The] A color image forming apparatus [according to claim 6,]
comprising:

a transfer belt device which feeds a transfer member; and
a plurality of image forming units, which are disposed facing towards the transfer belt
device,

wherein each of the image forming unit forms a desired image and sequentially
transfers the formed image on the transfer member fed by the transfer belt device,

wherein the transfer belt device at least in a portion in which the image forming units
have been disposed is arranged such that it is inclined with respect to the ground,

wherein each of the image forming units includes,
a rotary image carrier; and

a developing unit which develops a latent image formed on the image carrier with a
toner is located in a lower right quadrant when the transfer belt device in the image forming
unit is positioned in a lower left quadrant as viewed in an axial direction in which the image
carrier rotated, and

wherein the cleaning unit of a lower one of the image forming units adjacent to each other and the developing unit of an upper one of the image forming units adjacent to each other are arranged at positions partly overlapping with each other in a vertical direction.

20-22. (Canceled).--